

What is claimed is:

1. An isolated polynucleotide encoding a protein selected from:
  - a) an amino acid sequence selected from the group consisting of SEQ ID NO:2, SEQ ID NO:3, and SEQ ID NO:4;
  - b) a variant having at least 90% identity to the amino acid sequence selected from the group consisting of SEQ ID NO:2, SEQ ID NO:3, and SEQ ID NO:4;
  - c) an antigenic epitope of SEQ ID NO:2, SEQ ID NO:3, or SEQ ID NO:4;
  - d) an oligopeptide of SEQ ID NO:2, SEQ ID NO:3, or SEQ ID NO:4; and
  - e) a biologically active portion of SEQ ID NO:2, SEQ ID NO:3, or SEQ ID NO:4.
2. An isolated polynucleotide or the complement thereof selected from:
  - a) a polynucleotide selected from the group consisting of SEQ ID NO:6, SEQ ID NO:7, and SEQ ID NO:8;
  - b) a fragment of SEQ ID NO:6, SEQ ID NO:7, or SEQ ID NO:8;
  - c) a variant having at least 70% identity to the nucleic acid sequence of SEQ ID NO:6, SEQ ID NO:7, or SEQ ID NO:8; and
  - d) an oligonucleotide of SEQ ID NO:5, SEQ ID NO:6, SEQ ID NO:7, or SEQ ID NO:8.
3. A composition comprising the polynucleotide or the complement of the polynucleotide of claim 1.
4. A substrate comprising the polynucleotide or the complement of the polynucleotide of claim 1.
5. A probe comprising the polynucleotide or the complement of the polynucleotide of claim 1.
6. A vector comprising the polynucleotide of claim 1.
7. A host cell comprising the vector of claim 6.
8. A method for producing a protein, the method comprising:
  - a) culturing the host cell of claim 7 under conditions for protein expression; and
  - b) recovering the protein from the host cell culture.
9. A transgenic cell line or organism comprising the vector of claim 6.
10. A method for using a polynucleotide to detect the differential expression of a nucleic acid in a sample comprising:

a) hybridizing the probe of claim 5 to the nucleic acids, thereby forming hybridization complexes; and

b) comparing hybridization complex formation with a standard, wherein the comparison indicates the differential expression of the polynucleotide in the sample.

11. The method of claim 10 further comprising amplifying the nucleic acids of the sample prior to hybridization.

12. A method of using a polynucleotide to screen a plurality of molecules or compounds, the method comprising:

a) combining the polynucleotide of claim 1 with a plurality of molecules or compounds under conditions to allow specific binding; and

b) detecting specific binding, thereby identifying a molecule or compound which specifically binds the polynucleotide.

13. The method of claim 12 wherein the molecules or compounds are selected from DNA molecules, RNA molecules, peptide nucleic acids, artificial chromosome constructions, peptides, transcription factors, repressors, and regulatory molecules.

14. A purified protein selected from:

a) an amino acid sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:3, and SEQ ID NO:4;

b) a variant having at least 90% identity to the amino acid sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:3, and SEQ ID NO:4;

c) an antigenic epitope of SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:3, or SEQ ID NO:4;

d) an oligopeptide of SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:3, or SEQ ID NO:4; and

e) a biologically active portion of SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:3, or SEQ ID NO:4.

15. A composition comprising the protein of claim 14.

16. A method for using a protein to screen a plurality of molecules or compounds to identify at least one ligand, the method comprising:

a) combining the protein of claim 14 with the molecules or compounds under conditions to allow specific binding; and

b) detecting specific binding, thereby identifying a ligand which specifically binds

the protein.

17. The method of claim 16 wherein the molecules or compounds are selected from DNA molecules, RNA molecules, peptide nucleic acids, peptides, proteins, mimetics, agonists, antagonists, antibodies, immunoglobulins, inhibitors, and drugs.

5 18. A method of using a mammalian protein to prepare and purify antibodies comprising:

a) immunizing a animal with the protein of claim 14 under conditions to elicit an antibody response;

b) isolating animal antibodies;

c) attaching the protein to a substrate;

10 d) contacting the substrate with isolated antibodies under conditions to allow specific binding to the protein;

e) dissociating the antibodies from the protein, thereby obtaining purified antibodies.

15 19. A purified antibody comprising an antibody produced by the method of claim 18.

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